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10/575,983

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Matthew Glen Wheeler

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EXAMINER

NGHIEM, MICHAEL P

ART UNIT

PAPER NUMBER

2863

MAIL DATE

DELIVERY MODE

11/28/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|---------------------------------------|--|
| Office Action Summary | Application No. 10/575,983 | Applicant(s) WHEELER ET AL. | |
| | Examiner MICHAEL P. NGHIEM | Art Unit 2863 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 8-25-08, 12-12-07, and 11-08-07.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 9, 11-13, 17-21, 25 and 27-29 is/are rejected.
- 7) ☒ Claim(s) 6-8, 10, 14-16, 22-24, 26 and 30-33 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12-19-07, 12-10-07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The Amendments filed on August 25, 2008, December 12, 2007, and November 8, 2007 have been considered.

Information Disclosure Statement

The information disclosure statement filed on December 19, 2007 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered. A copy of CN 1289408 has not been submitted.

Claim Objections

Claim 25 is objected to because of the following informalities:

- after "freedom" (line 2), "problem" should be – model --.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 9, 11-13, 17-21, 25, 27-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Patten et al. (US 6,092,409).

Regarding claims 1 and 17, Patten et al. discloses a method and system for validating a flow calibration factor of a flow meter (Abstract, lines 1-2), comprising:

- determining an initial flexural stiffness (oscillation period, 901) of a component of said flow meter (via 901);
- determining a current flexural stiffness of said component (via 403);
- comparing said initial flexural stiffness to said current flexural stiffness (step 902);
- detecting a calibration error condition responsive to comparing said initial flexural stiffness to said current flexural stiffness (column 5, lines 9-12).

Regarding claims 2 and 18, Patten et al. discloses signaling said calibration error condition (step 904).

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Regarding claims 3 and 19, Patten et al. discloses correcting said flow calibration factor responsive to said calibration error condition being detected (column 10, lines 28-30).

Regarding claims 4 and 20, Patten et al. discloses said flexural stiffnesses are determined by solving a single degree of freedom model (measurement of oscillation, column 1, lines 34-35, using sensors, column 1, lines 42-46).

Regarding claims 5 and 21, Patten et al. discloses said single degree of freedom model is solved using a method comprising the steps of: applying a known force to said flow meter component (column 1, lines 34-35); measuring a resultant deflection of said flow meter component (sensors measure motion, column 1, lines 42-44); and determining said flexural stiffnesses (oscillation period) responsive to said force and deflection (column 2, lines 33-35).

Regarding claims 9 and 25, Patten et al. discloses said flexural stiffnesses are determined by solving a multiple degree of freedom model (determine period of oscillation based on flow calibration factor and density, column 2, lines 58-62).

Regarding claims 11 and 27, Patten et al. discloses said calibration error is corrected using coefficient estimation techniques (column 9, lines 37-41).

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Regarding claims 12 and 28, Patten et al. discloses said calibration error is corrected using multi-fluid calibration techniques (column 10, lines 28-30; Fig. 3).

Regarding claims 13 and 29, Patten et al. discloses said calibration error is corrected using trending techniques (using proportion of change, column 10, lines 28-30).

Allowable Subject Matter

Claims 6-8, 10, 14-16, 22-24, 26, 30-33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Reasons For Allowance

The **combination** as claimed wherein said single degree of freedom model is solved using a method comprising the steps of: determining a receptance transfer function; calculating an inverse receptance frequency response; and determining said flexural stiffnesses responsive to said frequency response (claims 6, 22) or said single degree of freedom model is solved using a method comprising the steps of: identifying constants; applying a transfer function model to a complex frequency response; converting said transfer function from a mobility form to a response form; extracting modal parameters from said transfer function; and calculating flexural stiffnesses

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responsive to said modal parameters (claims 7, 23) or generating a response model of said flow meter structure; converting said response model to a modal model; converting said modal model into a spatial model; and determining said flexural stiffness from said spatial model (claims 10, 26) is not disclosed, suggested, or made obvious by the prior art of record.

Response to Arguments

Applicant's arguments filed on November 8, 2007 have been fully considered but they are not persuasive.

With respect to the 35 USC 102 rejections of claims 1 and 17, Applicants argue that Patten does not disclose determining a flexural stiffness of a component of a flow meter. Patten does not disclose detecting a calibration error condition using a flexural stiffness. Patten does not disclose detecting a calibration error condition using a change in a flexural stiffness. Patten does not disclose verifying a flow calibration factor using a flexural stiffness.

Examiner's position is that Pattern discloses determining a flexural stiffness of a component of a flow meter (step 403 discloses measuring the period of oscillation of a flow tube). Patten discloses detecting a calibration error condition using a flexural stiffness (an error condition has occurred because the flow calibration factor may have

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changed, column 5, lines 8-12). Patten discloses detecting a calibration error condition responsive to comparing said initial flexural stiffness (expected period of oscillation is determined from prior measurements, column 5, lines 2-5) to said current flexural stiffness (current measured period of oscillation, lines 5-6) (column 5, lines 9-12; also see steps 902, 904, Fig. 9). Patten discloses verifying a flow calibration factor using a flexural stiffness (column 5, lines 8-12).

Applicants further argue that, in contrast, Patten discloses measuring a period of oscillation (see col. 6, line 62 to col. 7, line 1). Patten requires a fluid flow in the flow meter. Patten further discloses using the oscillation period to determine a density of a fluid flowing through the flow tube. Patten discloses using changes in measured density of a known fluid (see col. 2, lines 30-39 and 51-53). The density in Patten can be used to infer a change in a flow calibration factor.

Examiner's position is that measuring a period of oscillation of a flow tube (see step 403) teaches the step of determining a flexural stiffness of a component of a flow meter since the period of oscillation of a flow tube represents the degree of flexural stiffness of the flow tube. Furthermore, claims 1 and 17 do not exclude the requirement of fluid flow in the flow meter.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Nghiem whose telephone number is (571) 272-2277. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Michael P. Nghiem/

Primary Examiner, GAU 2863

November 25, 2008